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## Marine Corps Medical Officer Visits NHRC; Learns about Casualty Databases and Wounded Warrior Research

*Story by Anna Hancock, Naval Health Research Center Public Affairs*



*Rear Adm. Brian S. Pecha, the Medical Officer of the Marine Corps greets Mike Galarneau, Naval Health Research Center's Department Head for Medical Modeling, Simulation, and Mission Support before an Admiral's Call with NHRC staff in San Diego, May 1. Pecha visited NHRC to discuss how NHRC's science and technology improves wounded warrior care. (Photo courtesy of NHRC Public Affairs)*

SAN DIEGO – The Naval Health Research Center (NHRC) welcomed the Medical Officer of the Marine Corps Rear Adm. Brian S. Pecha, on an official visit to the command, May 1.

During the visit, NHRC's Medical Modeling, Simulation, and Mission Support (MMS&MS) team demonstrated several multifaceted joint medical planning tools and ongoing research initiatives to Rear Adm. Pecha and his team. The goal of the visit was to foster discussions about how NHRC's science and technology improves wounded warrior care, and its application across the Department of Defense.

"We have a diverse team of medical professionals, statistical and data analysis staff, operations researchers, information

technology specialists, intelligence analysts, and military personnel who can anticipate and identify the needs of the military," noted MMS&MS Department Head Mike Galarneau. "The team creates simulations to test various courses of action and identifies optimal medical responses."

Several of NHRC's joint-services tools and capabilities demonstrated to the admiral and his team included the Expeditionary Medical Encounter Database (EMED), Wounded Warrior Recovery Project (WWRP), the Joint Medical Planning Tool (JMPT), and the Medical Planners' Toolkit (MPTk).

Galarneau further noted that while these

*(continued on page 3)*

## NMRC Commanding Officer's Message

February 13 of this year, senior leaders from the White House, the Department of Defense, the Department of Health and Human Services, and other agencies joined with representatives of 25 other nations, the World Health Organization, and other international bodies to announce the Global Health Security Agenda. This is an international effort to “prevent, detect, and respond” to infectious disease threats. The focus of the Agenda is on the spread of antimicrobial resistance, emerging and re-emerging pathogens, and the accidental or intentional release of laboratory specimens. To that end, many organizations throughout the U.S. government will be working with partners around the world to enhance detection and bio-surveillance capabilities, to improve reporting systems, and to build response capacity. Navy Medicine R&D has been and will continue to be at the vanguard of these efforts. NMRC Asia/NAMRU-2 PP, NAMRU-3, and NAMRU-6 have long been intimately partnered with our host nations to work on infectious diseases of mutual concern and are recognized as significant national and international assets in this effort. NHRC’s brilliant management of the DoD HIV/AIDS Prevention Program continues to be the model of cooperative work with other nations to build capacity which has significant benefits for the detection and management of HIV and other emerging infections. NMRC’s innovations in rapid diagnostics and bioinformatics look to be key components of a developing strategy for pushing out sophisticated testing to underserved and at risk areas. We are already seeing that the announcement of the Global Health Security Agenda is re-shaping the language of international health and focusing new attention on the security aspects of these health related issues. I am proud that Navy Medicine R&D has played such an important role in shaping this thinking and that our commands will continue to be such important aspects of this security initiative.



NMRC Commanding Officer sends,  
John. W. Sanders III, CAPT, MC, USN

## NSMRL Commanding Officer's Message



It is my pleasure once again to update the Navy Medicine Research community with what’s been happening at the Naval Submarine Medical Research Laboratory. First, the snow has melted! It was an exciting winter with a total of approximately 58 inches of snow and numerous weather related base closures (average annual snowfall is 23 inches). However, it was 35 degrees this morning, so we’re not out of the woods yet! We have a lot of exciting work in progress and even more lined up for the future. Our team performance studies include observing actual submarine crews in training phases and validating the science of the Submarine Team Behaviors Tool that was pushed out to the fleet earlier this year. This project not only continues to gain traction with the Submarine Force but also has sparked interest with NASA and the British. NASA is an interesting collaborator of ours. The space program operates in enclosed environments similar to submarines and NASA’s concerns focus on atmosphere controls and team performance. We are collaborating in development of a means to discern when team breakdown is imminent. By identifying predictive markers it may be possible to preclude a breakdown altogether. The British, on the other hand, are looking to use team performance metrics in evaluating special operations teams in extreme environments. Location of study – Antarctica. We are in initial dialog but may have the opportunity to play a part in their study. More to follow.... On the horizon, we have been asked to design studies to evaluate and/or develop all phases of submarine escape and rescue operations from a disabled submarine. In another effort, we will be using our Genesis chamber to evaluate the effects of CO2 on human performance. Instead of taking the chamber to depth (or altitude) we will be using it to control atmospheric constituents at normobaric pressure. We were also asked by the Naval Safety Center to develop functional tests for flotation devices for topside watch standers. In all, there seems to be a lot of good projects that will be of direct value to the submarine force and certainly enough to keep us busy up here in Groton, the Submarine Capital of the World!

NSMRL Commanding Officer sends,  
Steven M. Wechsler, CAPT, MC, USN

## NAMRU-Dayton Lab Participates in 53rd Annual Meeting for the Society of Toxicology

*Story from NAMRU-Dayton Public Affairs*

DAYTON, Ohio - Scientists from Naval Medical Research Unit Dayton's (NAMRU-D) Environmental Health Effects Directorate attended and presented research at the 53rd Annual Meeting for the Society of Toxicology (SOT) held in Phoenix, Arizona, March 23 to 27, 2014. This meeting brought together approximately 6,500 toxicologists from over 50 countries to discuss recent advances and technologies in toxicological research. SOT is geared to provide innovative perspectives, in-depth analysis, and countless networking opportunities for a global audience.

Dr. Karen Mumy, Dr. Lisa Sweeney, Dr. Brian Wong, and Mr. Arden James were all co-authors on a combined total of five posters presented at the meeting, all of which were in collaboration with the U.S. Air Force or Army. Sweeney co-chaired a platform session on risk assessment of toxic metals.

NAMRU-D scientists teamed up with 711th Human Performance Wing/RHDJ U.S. Air Force scientists for a study to simulate conditions of high altitude and exposure to a known volatile organic compound.

Wong and James gave a poster presentation that captured the research's potential to wield a profound impact on the establishment of exposure limits of selected volatile organic compounds under extreme conditions associated with the operation of high performance combat aircraft.

In collaboration with U.S. Army, Sweeney presented research that generated data to test the validity of the toxic load model for extrapolation from constant exposures to time-varying exposures. The traditional laboratory data approach returns values that are similar to those obtained from an exposure scenario that

is more realistic for an environmental release. Investigators hypothesized that time-varying concentrations of hydrogen cyanide exposures would yield the same cumulative exposure, as determined by the toxic load model. DoD uses the toxic load model in military operational risk management, establishing the applicable range for its validity is critical to ensuring the well-being of our warfighters.

Additionally, NAMRU-D scientists contributed their research efforts to the following collaborative poster presentations at SOT: Mitochondrial respiratory impact of acute toluene exposure after rapid altitude adjustment, human health hazard assessment of hydroprocessed esters and fatty acids (HEFA) bio-based jet fuels and the effect of altitude on tissue distribution of toluene.

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## Marine Corps Medical Officer Visits NHRC; Learns about Casualty Databases and Wounded Warrior Research

*(continued from page 1)*

tools and initiatives are currently used extensively by Navy medical planners and strategists, each has either been accredited by the respective governing bodies or is in the process of gaining accreditation for joint use by all the services. The informational exchange with Rear Adm. Pecha revealed additional uses for these initiatives including long term wounded warrior tracking, monitoring of long term rehabilitative and quality of life outcomes, and for medical resource projection and planning.

"Our tools can predict exactly what medical supplies, personnel, and transportation resources are necessary in a variety of scenarios from combat deployments to disaster relief," explained Galarneau. "Our algorithms take the data aggregated from more than 15 sources and translate it into tactical, operational, personnel, and medical information useful

to any military decision maker. And our research aims to improve the long term quality of life for wounded warriors."

After the demonstration, Pecha met with NHRC's Commanding Officer Jacqueline Rychnovsky for a working lunch, and conducted an Admiral's call attended by over 85 NHRC personnel. During the call, Pecha lauded the team for developing a robust set of tools that help answer what he calls some of the most pressing problems.

"NHRC's mission of optimizing the operational health and readiness of our armed forces is tightly aligned with Rear Adm. Pecha's initiatives to improve care to in garrison, deployed, and forward-engaged Marines," said Rychnovsky. "The majority of our large studies at NHRC involve Marines as subjects, so having him see our work first-hand was an invaluable experience for both parties."

TMO has held his current position at the Marine Corps Health Services Headquarters in Arlington, Va., since October 2013. He was previously the Force Surgeon for Marine Forces Reserve in New Orleans, beginning in March 2013.

As one of the DoD's premier medical research center, NHRC's cutting-edge research and development is used to optimize the operational health and readiness of the nations armed forces. Within close proximity to more than 95,000 uniformed service members, world-class universities, and industry partners, NHRC's expert team sets the standards in joint ventures, innovation, and practical application.

Lt. M.D. "Dusty" Young, research psychologist, NHRC Warfighter Performance Department contributed to this article.



# Rear Adm. Wagner Tours Naval Medical Research Unit - San Antonio

Story from NAMRU-San Antonio Public Affairs



Rear Adm. Elaine C. Wagner (left), Deputy Chief, Wounded, Ill and Injured, Bureau of Medicine and Surgery, and Capt. Rita G. Simmons (right), NAMRU-SA's commanding officer, discuss the latest developments in hemorrhage control devices that will help support our warfighters. (Photo courtesy of NAMRU-SA Public Affairs)

SAN ANTONIO –Rear Adm. Elaine C. Wagner, Deputy Chief, Wounded, Ill and Injured, Bureau of Medicine and Surgery, visited the Naval Medical Research Unit – San Antonio (NAMRU-SA,) April 10, 2014. NAMRU-SA's Commanding Officer, Capt. Rita G. Simmons and her leadership team provided Wagner a tour of research work areas focused on the critical needs of the warfighters.

Wagner had a very keen interest in NAMRU-SA's research projects and indicated she could clearly see the importance and value of the work and how it benefits our warfighters. Wagner said, "This visit has been a perfect overview of what you do and makes me want to come back soon to learn more. I would like to have more time to spend with you during my next visit."

Dr. John Simecek, Director of Craniofacial

Health and Restorative Medicine, described how NAMRU-SA is researching cranial implant coatings in an effort to reduce postoperative infections in patients with traumatic injuries in the craniofacial region.

Mr. Roy Dory, a principal investigator for the Combat Casualty Care and Operational Medicine Directorate, presented NAMRU-SA's latest developments in tourniquet research, including junctional tourniquets. Dory elaborated on the anticipated benefits to warfighters in the field and during extended transportation periods to healthcare facilities.

Mr. Norm Barsalou, a research electrical engineer, and Ms. Bridget Endler, a biomedical engineer, in the Combat Casualty Care and Operational Medicine Directorate demonstrated ongoing laser bioeffects research.

Also, Dr. Nancy Millenbaugh, a principal investigator, presented research focused on the destruction of bacteria biofilms with gold nanoparticles. This research is aimed at finding novel methods of counteracting Methicillin-resistant *Staphylococcus aureus*.

Ms. Carrie Crane, department head and team leader for Veterinary Sciences, provided Wagner a tour of the 45,000 square foot Tri-Service Research Laboratory facility. Crane talked about the leading research that is being conducted daily in five separate state-of-the-art surgical suites that include laparoscopic equipment and digital x-ray machines.

The facility design provides flexibility and enables many types of research, development, test, and evaluation projects to be conducted within the command.



# Joint Efforts Emphasized During DHA Visit to NAMRU-Dayton Lab

Story from NAMRU-Dayton Public Affairs



*Dr. Wong demonstrates how NAMRU-D's unique nose-only inhalation towers operate during RADM Doll (left) and Lt Gen Robb (middle) visit. (Photo courtesy of NAMRU-D Public Affairs)*

DAYTON, Ohio – Defense Health Agency Director Lt. Gen. Douglas Robb and Defense Health Agency Director for Research and Development Rear Adm. Bruce Doll, visited Dayton's Air Force and Navy research facilities at Wright-Patterson Air Force Base (WPAFB), April 10 to 11, 2014.

The two day visit incorporated a tour of Naval Medical Research Unit Dayton's (NAMRU-D) unique science laboratories. NAMRU-D Commanding Officer Capt. Jeffrey Andrews and Brig. Gen. Timothy Jex, commander USAF 711th Human Performance Wing, accompanied them on the tour.

On the first day, Dr. Richard Arnold, Director of Aeromedical Research, NAMRU-D, led a tour through many Navy Medicine research laboratories. One

of the highlighted stops was NAMRU-D's Disorientation Research Device (DRD), a platform created to evaluate unique aviation and other dynamic operational environments. Cmdr. Richard Folga, Acceleration and Sensory Sciences Department Head, NAMRU-D, explained the capabilities of DRD.

He added that the device system's objective is to simultaneously perform research addressing leading aeromedical mishap causal factors including spatial disorientation, fatigue, motion sickness and hypoxia.

Other stops included the fatigue, spatial disorientation simulation, motion sickness countermeasures, vision sciences, and hypoxia laboratories. Day two included a visit to NAMRU-D's Environmental Health Effects Research

Directorate. Dr. Karen Mumy, Deputy Director Environmental Health Effects, NAMRU-D, lead a tour through two toxicology laboratories. This included a stop at the inhalation research facility; the DoD's largest.

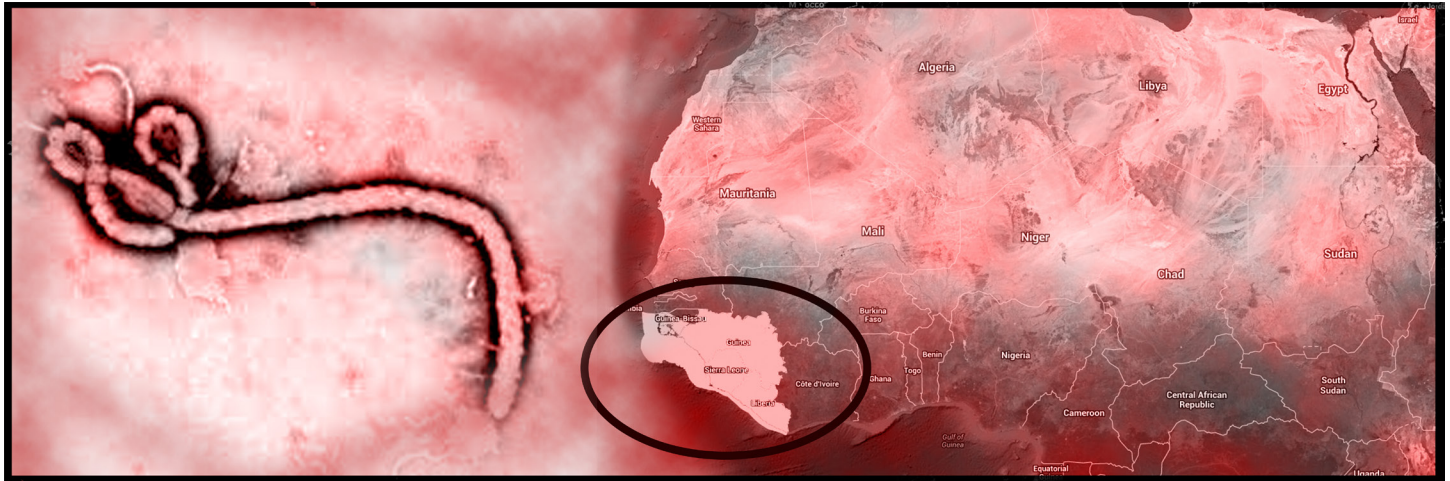
A demonstration of NAMRU-D's unique nose-only inhalation towers was included. NAMRU-D's inhalation systems are equipped with a diverse suite of analytical instrumentation capable of monitoring precise exposures to gases, vapors, aerosols and particulates, and environmental conditions.

In addition, Dr. Joyce Rohan (NAMRU-D) talked about the research conducted in NAMRU-D's electrophysiology laboratories.



# Naval Medical Research and Development Staff Assist West Africa in Control of Ebola Virus Disease Outbreak

Story from Naval Medical Research Center Public Affairs



Graphic illustration by Mikelle D. Smith, Naval Medical Research Center Public Affairs

SILVER SPRING, Md., -- Since their first report of the Ebola Virus Disease (EVD) outbreak March 24, 2014, the Ministry of Health of Guinea has reported a cumulative total of 224 clinical cases including 143 deaths.

Additionally, the Ministry of Health and Social Welfare (MOHSW) of Liberia has reported a total of 35 clinically compatible cases of EVD; six confirmed cases, two probable cases and 27 suspected cases. The Ministry of Health and Sanitation of neighboring Sierra Leone is currently investigating three patients with an illness compatible with a viral hemorrhagic fever (VHF) for EVD and Lassa fever (the latter is endemic in Sierra Leone).

As of May 1, 2014, the West Africa EVD outbreak appears to be diminishing, but local, national, and international health agencies continue their efforts to control the spread of this highly lethal illness.

While none of the Navy Medical Research

and Development (NMR&D) labs are actively tasked to EVD control efforts in West Africa, a number of current and former NMR&D lab staff members have been recruited by the WHO to assist. Most notably among these are former Naval Medical Research Unit Six's (NAMRU-6) Virology Department Head, Cmdr. Joel Montgomery USPHS and the current NAMRU-6 Virology and Infectious Diseases Department Head, Dr. Daniel Bausch.

Montgomery has been detailed to Guinea from his current position as the Head of the CDC's Global Disease Detection Center in Nairobi, Kenya. Bausch, who is assigned to NAMRU-6 under an Inter-Agency Professional Agreement with Tulane University, is a leading authority on emerging and re-emerging viral diseases.

In addition to Montgomery and Bausch, Cmdr. David Brett-Major, a Naval Medical Research Center asset detailed to

the WHO, Geneva, has been deployed (by the WHO) to Conakry, Guinea as a WHO consultant.

NMRC's Cmdr. James Lawler will deploy to Guinea May 5 at the by-name request of the WHO because of his previous experience in handling hemorrhagic fever cases.

Although not directly detailed to help in the control of the current EVD outbreak, Lt. Nehkonti Adams, Director of the Naval Medical Research Unit Three (NAMRU-3) field lab in Accra, Ghana is serving on the Case Management Working Group at the Ministry of Health helping create Ghana's first Ebola Emergency Preparedness Plan.

The active engagement of these NMR&D lab staff members in current EVD control efforts speaks to both the relevance and high quality of the research, surveillance, and response activities of the NMR&D labs.

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Graphic illustration by Mikelle D. Smith, Naval Medical Research Center Public Affairs



# Joint Army-Navy Project Measures Effects of Blast Overpressure

Story by Ben Sherman, Fort Sill Cannoneer Public Affairs



Cannon crewmembers from the 2-2nd FA brigade fire a 105mm howitzer March 26 on the east range at Fort Sill, Okla. The live fire exercise was part of a research project to measure blast overpressure from the howitzer. Blast sensors were placed on the Soldiers, equipment and at a 25-foot radius to measure blast pressure. (Photo by Ben Sherman, Cannoneer staff)

FORT SILL, Okla. - The Army and Navy are working on a joint research project to measure the effects of concussion, traumatic brain injury and blast events on military personnel. One area of research is the measurement of blast overpressure, especially related to field artillery, both during combat and training.

A research team recently visited Fort Sill to conduct testing and gather data from live-fire exercises conducted by "Big Deuce," the 2nd battalion, 2nd Field Artillery brigade on the east range here.

"We're working with the Walter Reed Army Institute of Research (WRAIR) to evaluate different types of blast sensors in the training environment," said Navy Lt. Uade Da Silva, a research scientist from the Naval Medical Research Center. "These types of sensors have been deployed in Afghanistan for about a year."

WRAIR is a subcommand of the U.S. Army Medical Research and Materiel Command, which focuses on medical research, development, acquisition and

medical logistics management worldwide.

Blast overpressure (BOP) is the pressure caused by a shock wave over and above normal atmospheric pressure. The source of the shock wave can be a sonic boom or an explosion or the firing of a weapon such as a cannon.

"The effects of blast overpressure from firing a howitzer can have the same effect as an explosion or even a non-combat blow to the head," said Army Lt. Col. Chris Compton, 2-2nd FA battalion commander. "We're shooting a mid-level charge today out of a 105mm gun, and you can calculate the greater effects of the higher charges we shoot from the 155mm guns."

Dr. Gary Kamimori, a WRAIR research physiologist, worked with his team to set up devices to measure the effects of blast overpressure.

"The Soldiers are wearing the Gen. 2 helmets with acceleration sensors built into them and a blast gauge developed

by DARPA (Defense Advanced Research Projects Agency)," Kamimori said. "Our focus is to determine what Soldiers in the training venues need because of the BOP they receive almost every day. That's what the DARPA blast gauge measures. The Gen. 2 gauge measures acceleration, such as the effect of an IED (improvised explosive device) blast inside a vehicle, or a Soldier being blown back in different situations."

The live-fire exercise was conducted in March on a 40-degree day, in the rain and with a 25 mph wind. It was just another day on the range for the "Big Deuce" Soldiers, but it presented challenges for the research team.

"The weather is not cooperating with us, but that's actually a good thing, because it makes the testing environment real world. It helps us know if wearing extra clothing changes the way a blast affects the Soldier," Kamimori said. "The fires team said they were good to go as long as they could see what they were shooting at, and the sensors work in the rain and cold. However, the weather has caused some issues with our test equipment. They're built more for the lab environment than being out here, but we are making it work and recording data."

A number of sensors were placed in a 25-foot radius from the howitzer. This allowed the blast wave coming from the weapon to be measured in different directions. Another goal of the study was to measure blast exposure based on different crew positions around the gun when it was fired. Each cannon crewmember wears pressure sensors mounted on the front of their armored vests, on their shoulder and on the back of their helmets. The blast sensor trigger levels are set high enough to register larger blast levels, but not pick up small arms fire or other loud sounds.

"We want to see how effective these sensors are in the artillery environment,

(continued on page 15)

# NAMRU-3 Vector Biology Research Program Building Partnerships in Liberia

*Story from NAMRU-3 Public Affairs*

CAIRO – The U.S. Naval Medical Research Unit No. Three (NAMRU-3) has been working with the Armed Forces of Liberia's (AFL) Preventive Medicine Program for over two years.

Lt. Joseph W. Diclaro, head of NAMRU-3's Vector Biology Research Program, and his team work in close collaboration with the Navy Entomology Center of Excellence (NECE) and the Liberian Institute for Biomedical Research to build capacity that will be long term and sustainable to help reduce the malaria incidence among AFL service members and their families.

In April the partners presented a custom-designed Public Health Pest and Vector Control Course to AFL members. "The goal of this capacity building mission was to train the trainers by providing an intense two week course on integrated pest management which will then be taught by the AFL preventative medicine team to other members of the AFL and Liberian community," said Diclaro. "Most importantly this training allows us to add sustainable value to the AFL that will not just have a one-time effect."

The participants used the information provided in the course to coordinate and successfully execute the treatment of over 200 barracks during the training and allowed the AFL PrevMed team to continue their own spray operation of the remaining 600 barracks rooms on Camp Edward Binyah Kesselly, as well as develop a plan to conduct indoor spray operations for three other AFL bases.

"This training has provided the AFL PrevMed team with the equipment and training to make a true impact on our soldiers and their families," said Pfc NaDoris Nador, NCOIC of the AFL PrevMed, "The best part of what NAMRU-3 and GEIS have done for us is to give us a path to be able to manage ourselves once the projects are over," Nador concluded.



*Lt Joseph W. Diclaro (middle) guides Cpl Jerry Reeves (left) and Pfc Sidkiki Kamara (right) to properly ready backpack sprayer with insecticides for the first round of Indoor Residual Spraying. (Photo courtesy of NAMRU-3 Public Affairs)*

GEIS is the Armed Forces Health Surveillance Center, Global Emerging Infections Surveillance and Reponses System. GEIS promotes and facilitates national and international preparedness for emerging infections with a focus on protecting the health of DoD personnel.

"This mission is an excellent example of the benefits of collaboration," said Capt. Eric Hoffman, Officer in Charge, NECE. "NECE, NAMRU-3, LIBR and OOL under AFRICOM all worked to make this happen using our diverse expertise to come together and create an innovative new curriculum for use in the AFRICOM region."

NAMRU- 3 Commanding Officer Capt. Buhari Oyoyo said, "NAMRU-3 works hard to develop research ideas, but it works even harder to leave the benefits of our projects behind in the host countries once we're done. That's what medical diplomacy is all about."



## Nigerian Researcher Returns for Training at NAMRU-3 Lab in Cairo

*Story from NAMRU-3 Public Affairs*



*Ms. Olabisi Oduwole works on PCR analysis of samples in the Vector Biology Research Program. (Photo taken by Rafi George)*

CAIRO - The Calabar Institute of Tropical Diseases Research and Prevention (CITDR&P) at Calabar University in Nigeria, and the U.S. Naval Medical Research Unit No. Three (NAMRU-3), are working together enhancing vector-borne disease research and diagnostics. The first group from CITDR&P visited NAMRU-3 for training on microscopic identification of mosquitoes, molecular techniques for plasmodium detection and detection of malaria plasmodium in human blood samples in February 2013.

Ms. Olabisi Oduwole, a member of that group, returned in March 2014 to continue collaborative research in malaria diagnostics. She brought vector, human, and simian blood samples collected in Nigeria for processing at NAMRU-3. Working alongside her collaborators, Oduwole, who is a research associate and

Ph.D. candidate at CITDR&P, will use data generated from samples to provide new information about malaria in Nigeria.

“The CITDR&P lab doesn’t currently have facilities to do PCR and entomology work on mosquitoes and samples collected from humans and primates,” said Oduwole. “It is hoped that these findings will benefit both NAMRU-3 and CITDR&P. I enjoy doing field work to get samples from patients. In the lab we need to determine the presence of anopheles mosquito, which is the vector of malaria parasites, to see if it carries the parasite. We also check human and primate blood for malaria parasites using molecular methods. I received refresher training on extracting DNA and doing the PCR method.”

This training sets the stage for future work for others from CITDR&P to come

to NAMRU-3. One benefit of having research scientists train at NAMRU-3 is the ability to see quality research work done at a U.S. Navy lab. This promotes capacity building for research institutions in West Africa.

“Seeing what we do at NAMRU-3 and how we do it is the best form of medical diplomacy,” said Capt. Buhari Oyofo NAMRU-3 commanding officer.

After returning to Calabar, Oduwole will be able to generate data from work performed at NAMRU-3, and analyze findings.

She also plans to trap more mosquitoes. Oduwole looks forward to training others and forming a team of skilled researchers.

# Navy Sailor Meets Bone Marrow Recipient

Story by Mass Communication Specialist 3rd Class Mark P. Langford, Navy Recruiting Command Public Affairs



*Lt. Eric Priest (left) standing with bone marrow recipient Phil Jones (right). Jones was the recipient of bone marrow donated from Priest. (Photo courtesy of Navy Recruiting Command Public Affairs)*

MILLINGTON, Tenn. – Eric Priest carefully removed the paper wrapping from a small box and wordlessly inspected the pewter clock inside and the words engraved on the surface: “Eric Priest, Thanks For Adding Time To My Life. Phil Jones July 4, 2012.”

Priest is a lieutenant in the United States Navy and is the deputy director for reserve general officer accessions for Navy Recruiting Command in Millington, Tenn. He is also registered with the C.W. Bill Young Department of Defense (DoD) Marrow Donor Program. On March 8, 2014, Priest met Phil Jones, the 75-year-old recipient of his bone marrow transplant for the first time more than a year after the successful procedure.

“I was nervous, a little anxious and excited as well [to meet him] and see how he was doing,” said Priest.

The story of how their lives became linked forever began with a phone call. Priest received the call from the DoD Marrow Donor Program saying he was a possible match for a patient and they needed a

blood sample for further testing to find the match with a highest probability for success.

“This was the 3rd time I had been called for a sample and both times I wasn’t the closest match, so I didn’t expect anything different,” said Priest.

Priest was in Monterey, Calif., when he was given the news: “you’re the best match for this patient.” Priest was given very little information on the potential recipient. Even after the procedure, it was policy that both parties’ identities would be withheld and communication is not allowed until one full year after the procedure.

“All I knew was the donor was a 33-year-old male ‘somewhere in the U.S.,’” said Jones.

Priest was only aware of similar information: the recipient is a 75-year-old male that has been diagnosed with myelodysplasia. He had no idea of the unique situation Jones was in. Myelodysplasia is a blood-related medical

condition that affects the development of specific blood cells caused by progressive bone marrow failure.

“When I was diagnosed, I was only given 1.5 years to live and Medicare does not cover transplants for individuals over 65 years old,” said Jones.

Outside of his age, Jones was an excellent candidate for the bone marrow transplant he needed.

“I was rejected,” said Jones. “A world-renowned cancer institute in the United States said ‘nope, you’re too old.’”

Jones eventually found a hospital willing to perform the procedure. The H. Lee Moffitt Cancer Center & Research Institute in Tampa, Fla., agreed to perform the transplant as part of a government grant designed to collect data on older patients receiving transplants. In July 2012, the DoD Marrow Donor Program flew Priest and his wife to San Diego to begin the process of his transplant.

“We didn’t pay for anything out of pocket,” said Priest. “They paid for all of our meals and we stayed in a hotel right on the golf course.”

Despite many misconceptions about the process of donating bone marrow, it is a relatively simple procedure with minimal pain for the donor. Advances in technology have done away with the feared needles drilled into the hip to collect the marrow.

Peripheral Blood Stem Cell Transplants filter the cells from the bloodstream. Four to five days before the procedure, patients are given injections to increase the number of stem cells produced in the bone marrow. The extra cells then collect in the bloodstream which can then be filtered from the blood using a machine, according to the National Cancer Institute. Some of the side effects can include bone pain, stiffness or soreness, and headaches.

“By the third day I had a minor headache, but that was probably because I couldn’t have any coffee,” said Priest.

*(continued on page 13)*



## R&D Chronicles:

### Captain George Bond and the World of Undersea Research, Part I

By Andre B. Sobocinski, Historian, Bureau of Medicine and Surgery

*“Knowledge of the oceans is more than a matter of curiosity. Our very survival may hinge upon it.”*

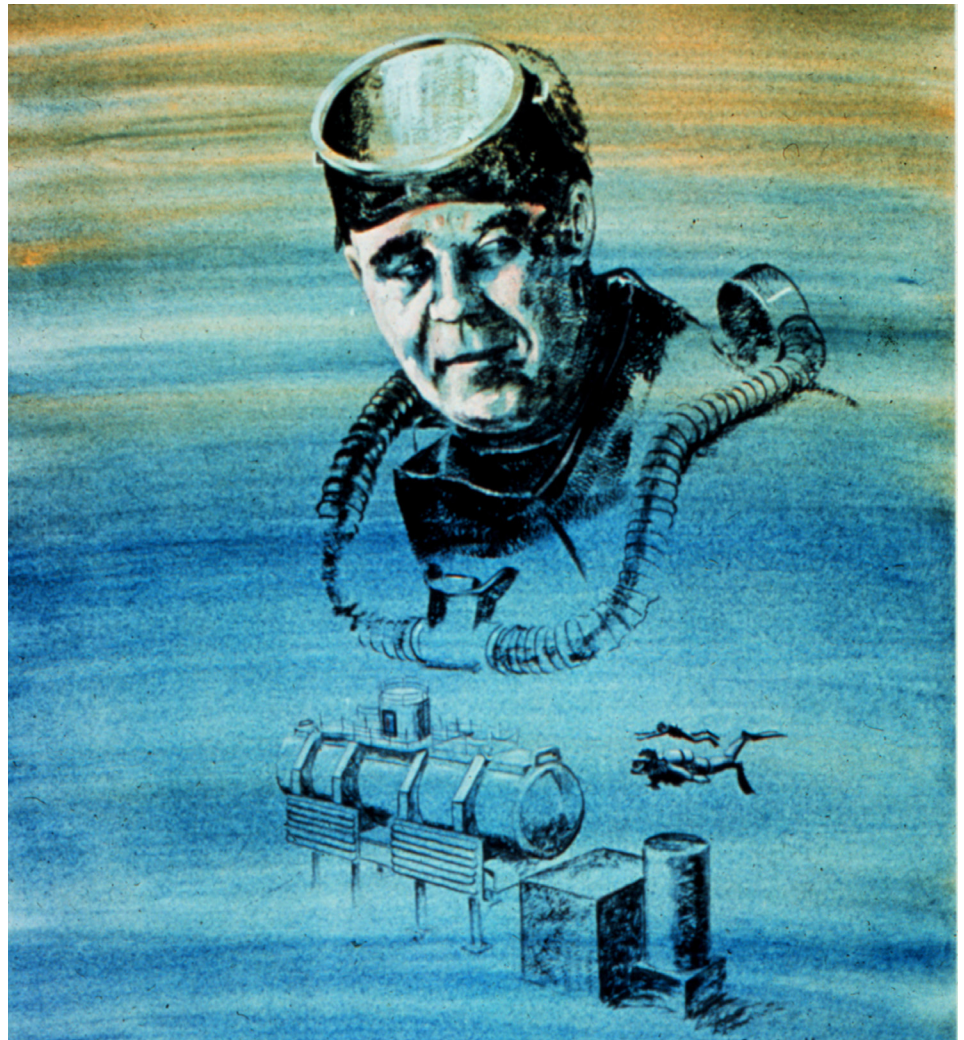
—President John F. Kennedy

As Project Mercury was transporting public imagination to the stars, one Navy Medical Officer looked to the seas as the new frontier of exploration and habitation.

In 1958, Cdr. (later Capt.) George Bond proposed an ambitious plan of underwater research that seemed to have been inspired by the writings of Jules Verne. Bond saw a literal untapped ocean of opportunity for mineral mining, marine archeology, biology and colonization that could lead to discoveries of new medicines and harvestable resources. In the 1960s, Bond pioneered the SEALAB program, which would serve as one of the first underwater habitation projects and the first open water experiment in saturation diving.

Before the SEALAB, Bond spearheaded Project Genesis (1957-1963), the first study of saturation diving in an artificial environment. So named for the biblical prophecy of man’s “dominion over the sea,” the experiments simulated a subsurface environment in a hyperbaric chamber and tested an assortment of gas mixtures that could be used by humans living in an ocean habitat.

The experiments which took place at the Naval Submarine Medical Research Laboratory in New London, Conn. and the Naval Medical Research Institute in Bethesda, Md., were overseen by Bond and undersea medical officers Cdr. (later Capt.) Walt Mazzone and Cdr. (later Capt.) Robert Workman. Bond and his team studied an assortment of animals and later humans related to various pressures and gases in the pressurized chamber. Goats were the standard test subjects because of the similarity of their anatomies to humans. Ben Hellwarth, author of *SEALAB: America’s Forgotten Quest to Live and Work on the Ocean Floor*, would assert that the “saturated goats” were to diving and undersea research



*Drawing of Capt. George Bond, “Father of Saturation Diving.” (Drawing courtesy of National Oceanic and Atmospheric Administration)*

what monkeys Able and Baker were to the space program. In 1962, Bond, Mazzone and Workman published their initial findings in *Genesis: Prolonged Exposure of Animals to Pressurized Normal and Synthetic Atmospheres*.

The project would ultimately culminate in August and September of 1963 when a Navy medical officer and two chief petty officers spent 12 days at a simulated record ocean depth of 200 feet while

breathing artificial air.

Project Genesis established that humans in a saturated state could perform useful functions for extended periods of time underwater. Over the next decades, Genesis findings would unlock potential for marine research, construction, and salvage operations while paving the way for underwater habitation projects of Jacques Cousteau, Edward Link and Bond’s SEALAB.

## NAMRU-3 Lab Supports American University Career Day in Cairo

*Story from NAMRU-3 Public Affairs*



*NAMRU-3's Nermeen Fahmy (left) demonstrated to AUC student Ms. Salma Fouad how to load amplicons on a gel. (Photo by Rafi George.)*

CAIRO - The American University in Cairo (AUC) Career Center invited Naval Medical Research Unit No. Three (NAMRU-3) to participate in Career Day, February 26. The university's goal was to link students with professionals at institutions and companies in Egypt.

NAMRU-3 was represented at the career education forum by Vector Biology Research Program's Dr. Hala Bassaly. A physician and researcher, she previously taught Scientific Thinking at the American University in Cairo. Bassaly spoke about the mission of NAMRU-3 and explained the lab's current activities.

"NAMRU-3 fully supports capacity building in our host country of Egypt," said NAMRU-3 Commanding Officer, Capt. Buhari Oyofa. "One of the best ways we can accomplish this is by encouraging and mentoring students

at local universities. Over the years, NAMRU-3 has been involved in numerous capacity-building initiatives with American University in Cairo, ranging from participation in career days and job shadowing, internships, certificate programs; and, training assistance with master's degree students. Numerous AUC graduates have become researchers at NAMRU-3 over the years."

The forum allowed students to have one-on-one and small group discussions. Bassaly focused on personal insights into the field of medical research. Undergraduate and graduate students' asked about the job market outlook, the skills an entry-level candidate would need to break into this career field, relevant background required and potential for growth in the field.

After the Career Day, Ms. Salma Fouad,

an AUC Biotechnology master's student, signed up for Shadow Day, so she could experience a full day of research activities in a NAMRU-3 laboratory. Assigned to medical research technologist Ms. Nermeen Fahmy, Fouad spent a day in the Vector Biology Research Program lab watching PCR analysis, running electrophoresis, and analyzing the results.

"I enjoyed having Ms. Fouad shadow me in the lab because she asked lots of good questions at every step," said Fahmy. "She told me that while she had studied the techniques, it had all been written descriptions, with no practical applications or a chance to see the procedures being carried out. Actually seeing the work being done allowed her to go beyond the theoretical to real lab practices."



# Navy Sailor Meets Bone Marrow Recipient

(continued from page 10)

During his injections, Priest was able to function as he normally would. I was visiting the beach and going on 3-5 mile runs. The only restriction was no contact sports, said Priest.

“Honestly, it was a vacation,” said Priest. “I couldn’t believe people wouldn’t want to sign up.”

During this time, Jones was at Moffitt Cancer Center in Tampa undergoing chemotherapy to destroy what was left of his marrow in preparation to receive Priest’s stem cells. Despite his fragile condition and the side effects from chemotherapy, Jones’ recalls the process with a positive outlook.

“I tried to imagine who this person [his donor] was, you know, does he have a lot of hair,” said Jones.

After the procedure, the donor and recipient must wait one year before knowing each other’s identity or communicating back and forth.

“They would call periodically to check on me and would let me know the transplant went well and he is doing well,” said Priest.

Almost exactly one year after the procedure, both Priest and Jones signed consent to release their information to each other and it didn’t take long for Priest to receive a letter from the man who now carried around his bone marrow. Both families have been in touch since that time and their meeting was something both looked forward to.



*The clock Jones gave Priest signifying his gratitude for the bone marrow donation. (Photo courtesy of Navy Recruiting Command Public Affairs)*

“When we first meet, I’ll probably give him a hug,” said Priest. “I think I promised his wife a hug too.”

Holding true to his word, when Jones and his wife met Priest and his family at their home in Millington, Tenn., March 8, they exchanged hugs and Priest made sure to give Jones’ wife a hug. Both families spent time connecting and sharing each other’s stories and experiences of the process that they had previously only wondered about. The tone of the meeting remained joyful even sharing a few jokes about Jones having a younger man’s blood.

Jones shared with Priest and his family that because of the sacrifices they made, his condition is now in complete remission and since his success, two other

transplants have now been completed with older patients in the U.S.

“Growing up a Christian, you have a sense of service,” said Priest. “This was another way for me to serve others.”

During their conversation Jones asked Priest if he would do it again. “Absolutely, I’d do it again in a heartbeat,” said Priest.

For more information about the C.W. Bill Young Department of Defense (DoD) Marrow Donor Program, visit [www.salutetolife.org](http://www.salutetolife.org).

## NMRC – The Bridge Between Bone Marrow Drives and National Registry

Following DoD bone marrow drives, consent forms and oral swabs with cell samples are sent to the C.W. Bill Young DoD Marrow Donor Program Center which is part of the Naval Medical Research Center’s Bone Marrow Research Directorate.

Each oral swab is treated to isolate pure DNA from the genes on chromosomes for the cheek cells. If a donor is matched

with a patient, a program representative contacts the donor and works closely with both the donor and the command.

Additional medical evaluations are performed to ensure the donor’s good health and a transplant date is selected. The donor’s cells are transported to the patient’s hospital for transplantation. The patient and donor can choose to meet each other one year after the transplant.

The NMRC Bone Marrow Research Directorate provides military contingency support for potential casualties with marrow toxic injury due to radiation or chemical warfare agents.

The directorate performs research that supports technology innovations to make highly reliable and cost-effective DNA-based typing for marrow transplants.

## NAMRU-6 Helps Ensure Safe Food for School Children Under Qali Warma Assistance Program

*Story from NAMRU-6 Public Affairs*

LIMA, Peru. The U.S. Naval Medical Research Unit No. Six's (NAMRU-6) Biomedical Informatics Department (BID) successfully delivered an informatics solution for Qali Warma, one of the national nutrition assistance programs supported by the Peruvian Ministry of Social Inclusion and Development, March 2014. The Qali Warma project is a great example of the extension of DoD's efforts in partner militaries to other populations in support of global health security.

Qali Warma, the expression for well-fed child in Quechua, provides nutrition assistance from age 3 on to nearly 2.7 million elementary school children in over 47 thousand public schools across the country. Its coverage is expected to increase to more than 3.8 million children by 2016.

To ensure food availability, quality, and safety, Qali Warma relies on the joint cooperation of government, private sector, and local communities. Procurement and nutrition committees composed of teachers, parents, and other members of the community at each beneficiary school are responsible for ensuring satisfactory food delivery by suppliers and associated events.

To provide committees with a tool for real-time notification of conformity of food receipt and health events associated with food-borne disease, the managers of Qali Warma expressed their interest in partnering with NAMRU-6 BID to develop and implement an informatics suite for real-time notification and early detection of health events associated with the distribution of food rations across the country.

BID developed the solution integrating technologies such as Interactive Voice Response (IVR) for data entry, the Internet for data visualization, and Short Message Service (SMS) for data dissemination and alert notification. Capitalizing on previous successful experiences in electronic disease surveillance in the ministries of Health and Defense, BID implemented the solution successfully according to Qali Warma's scope and time requirements.

The development of the IVR component followed lessons learned during the past eleven years of DoD-funded electronic disease surveillance in the Peruvian military. The Web component was developed from successful components of other solutions developed by BID in collaboration with partner militaries from Central America for HIV/AIDS prevention.

## Daughter of Renowned PHS Researcher Visits NMRC and Gorgas Memorial Library

*Story by Doris Ryan, Naval Medical Research Center Public Affairs*



*Laura Gilliam, the guest of Dr. Allen Richards (right) and Dr. Daryl Kelly (left) visit the Gorgas Memorial Library to discuss donating her father's diary which describes his time and experience with scrub typhus in the China-Burma-India Theater in WWII.*

SILVER SPRING, Md. - Ms. Laura Gilliam, daughter of Dr. Alexander Gordon Gilliam, visited the Gorgas Memorial Library to discuss donating her father's diary.

Dr. Gilliam was a field officer of the U.S. Typhus commission in Assam. He was a physician of the PHS during WWII and while serving in the China-Burma-India (CBI) Theater he came down with scrub typhus.

The agent that caused his disease was cultured and isolated and has been one of three prototype strains of *Orientia tsutsugamushi* used for research and vaccine development for over 70 years.

The diary describes his time in CBI and his work with scrub typhus. Ms. Gilliam was the guest of Dr. Allen Richards and Dr. Daryl Kelly from the Naval Medical Research Center's Viral and Rickettsial Diseases Department.

The Gorgas Memorial Library serves the Naval Medical Research Center and the Walter Reed Army Institute of Research.



# Naval Medical Research Unit - San Antonio Use Synthetic Human Mannequin Supporting Test and Evaluation Efforts

Story from NAMRU-San Antonio Public Affairs



Mr. Roy Dory, a Biomedical Engineer at NAMRU-SA, applies a compression bandage to the mid-thigh of the SynDaver™ Synthetic Human. (Photo courtesy of NAMRU-SA Public Affairs)

SAN ANTONIO - Scientists at Naval Medical Research Unit San Antonio (NAMRU-SA) are among the first to use the SynDaver™ Synthetic Human (SSH), an anatomically accurate synthetic human replica, to support test and evaluation efforts that aim to characterize the performance and effectiveness of various treatment modalities used in combat casualty care.

The SSH is comprised of individually constructed muscles, bones, organs, and tissues designed to mimic the geometry and physical properties of living human

tissues. The mannequin also features a simplified vascular system with a heart pump which offers researchers the unique ability to control and measure variables associated with blood flow. This new technology provides researchers an alternative to using animals and humans in studies.

The first NAMRU-SA study to utilize the SSH, an evaluation of compression bandage systems, was recently completed by researchers in the Expeditionary and Trauma Medicine Department. Functional data collected using the SSH served to

differentiate the effectiveness of several existing compression bandage models and establish performance benchmarks for emerging device designs.

NAMRU-SA's researchers used the SSH to determine whether the compression bandage models could exert adequate pressure over a simulated wound site on the lower extremity without disrupting blood flow distal to the wound. The SSH provided a repeatable method for quantifying compression bandage performance and allowed researchers to determine the effectiveness of various mechanical features incorporated into the compression bandage designs.

Additional studies utilizing the SSH are planned and underway including an evaluation of pelvic binding devices used to splint the pelvis after traumatic injury and evaluations of both extremity and junctional hemorrhage control devices.

While further study is warranted to more accurately determine the clinical translation of SSH studies the functional data collected provides valuable insight into the operational characteristics of devices used in combat casualty care prior to fielding and human application.

## Joint Army-Navy Project Measures Effects of Blast Overpressure

(continued from page 7)

and if the body-worn sensors and the helmet sensors are useful in measuring the acceleration and the overpressure the Soldiers are exposed to," Da Silva said.

Da Silva said the researchers expect these sensors to work for several months of continuous recording and can be checked in the field at different times using a small handheld computer. Sensors have a three-

light indicator system - red, yellow or green that can indicate different pressure levels.

"We have come to realize that this kind of concussion can be a cumulative component of TBI (traumatic brain injuries). Often Soldiers won't tell the medics that they've been shook up, or they honestly don't know how hard they were banged around," Da Silva added.

Compton emphasized how important testing like this can be to develop better technology to treat Soldiers.

"The data they measure out here will tell us how good the equipment is now, and that may lead to development of better equipment down the road," Compton said.

# NMRC Volunteers Support the National Museum of Health and Medicine's WHO World Health Day Event

Story by Doris Ryan, Naval Medical Research Center Public Affairs



*Lt. Cmdr. Singer (left) demonstrates the difference between harmful and harmless creatures during the National Museum of Health and Medicine World Health Day Family Program 2014. (Photo taken by Doris Ryan, Naval Medical Research Center Public Affairs)*

SILVER SPRING, Md. - Several volunteers from the Naval Medical Research Center (NMRC) participated in the National Museum of Health and Medicine's family program highlighting the World Health Organization's (WHO) World Health Day 2014, April 12. The theme for this year's event was Small Bite, Big Threat and focused on vector-borne diseases carried by mosquitoes, flies, ticks and other vectors.

Visitors to the museum had a chance to learn how DoD protects deployed personnel from infectious diseases and also how DoD is addressing global health issues. The museum provided several hands-on educational activities for all age levels showcasing a variety of vectors.

There were activities focused on personal safety and protection, interactions between humans and the environment, the benefits of helpful bugs, and how diseases are spread by a variety of other bugs.

Before entering the museum visitors had an opportunity to see how bugs are used as food in some areas of the world and samples were provided to those willing to taste something different. They also had a chance to see and touch a bed net used by deployed personnel in the field.

Inside the museum children and adults learned about harmful and harmless bugs. They could compare the Madagascar cockroaches to sandflies and mosquitoes and discuss with subject matter experts which is harmful and which is harmless, despite appearances. There was an interactive vector map showing environmental patterns and geographic features for vector differences around the world.

Another activity station posed the question which is more deadly –insects, lions, bears, alligators, etc. The answer was insects. Subject matter experts were available to answer questions and show

visitors sand flies and other insects.

A popular hands-on learning activity was the presentation by a bee keeper. Visitors learned how bees make honey, how they contribute to the environment and why it is important to protect bees.

The event was supported by NMRC, Walter Reed Army Institute for Research; Armed Forces Pest Management Board, and the U.S. Army Medical Research and Materiel Command.

The National Museum of Health and Medicine promotes the understanding of medicine - past, present, and future - with a special emphasis on tri-service American military medicine. Recognized for its ongoing value to the health of the military and to the nation since 1862, the museum identifies, collects, and preserves important and unique resources to support a broad agenda of innovative exhibits and educational programs.



## NAMRU-3 Participates in Outreach to High School in Ghana

*Story from NAMRU-3 Public Affairs*



*Lt. Nehkonti Adams, officer in charge at NAMRU-3's Ghana Detachment speaks to students at the Herrman Gmeiner Senior High School located in Tema, Ghana. (Photo courtesy of NAMRU-3 Public Affairs)*

GHANA - The U.S. Naval Medical Research Unit No. Three (NAMRU-3) Ghana Detachment OIC Lt. Nehkonti Adams met with forty students in two history classes at Herrman Gmeiner Senior High school in Tema, Ghana, April 11.

The high school is located about 35 miles from the capital Accra and is a non-profit charitable institution for orphans from countries throughout Africa. One of the school's goals is for its students to have a sense of social responsibility and commitment to serve Africa.

Adams had met the school's history teacher, who explained that her class was exploring a curriculum called "humanizing history." She felt that Adams' background

and military accomplishments would be a great way to humanize history and invited her to meet her classes.

Accompanied by other detachment staff members, Pamela Adinkrah, Naiki Puplampu, Patrick Ben-Coffie and Thelma Tagoe, Adams chose the theme, Global Force for Good by telling them about her career and community service.

In 2012, Adams had taken part in a Navy recruiting video campaign which highlighted her dedication to community service and career accomplishments, starting as a deck seaman and becoming a Navy physician. Adams and her team also discussed the mission and activities of the NAMRU-3 Ghana Detachment in the

region.

"Encouraging young students to pursue careers in the sciences has always been a passion of mine," said Adams, "so it was a particular pleasure to be invited to speak with the students at the Herrman Gmeiner Senior High School."

Adams explained, "I have always enjoyed participating in community service and especially when it involves students. I worked with primary, junior high and high school students in the Norfolk, Virginia area when I was in medical school by organizing workshops that promoted math and health sciences career preparation and by conducting tours of the Eastern Virginia Medical School anatomy lab."



## NAMRU-6 Adds State-of-the-Art Endoscopy to Vivarium Facility

Story by Lt. Cmdr. Drake H. Tilley, Jr., NAMRU-6 Public Affairs



*Army. Maj. Matthew Goldman (Director, Pediatric Gastroenterology Fellowship, WRNMMC) and Army Maj. Luis Lugo-Roman (Director of the laboratory animal facility at NAMRU-6) perform endoscopy at the NAMRU-6 lab animal facility. (Photo courtesy of NAMRU-6 Public Affairs)*

LIMA, Peru - The U.S. Naval Medical Research Unit No. Six (NAMRU-6) continues to improve and enhance their ability to provide cutting edge research to the Latin American region.

Accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC), NAMRU-6 provides one of four AAALAC accredited facilities in all of South America capable of performing pre-clinical research in a variety of laboratory models.

NAMRU-6 researchers developed a model of infectious diarrhea for *Shigella*, enterotoxigenic *Escherichia coli* (ETEC), and *Campylobacter* infections. With the ability to test combination vaccines against the most common bacterial causes of diarrhea, NAMRU-6 Immunologist Lt. Nathanael D. Reynolds bolstered immunology capabilities to be able to evaluate the immunologic response against infection before and after vaccination. With new laboratory capabilities such as a 14 channel flow cytometer, enzyme-linked immunosorbent spot assays (ELISPOT); hemagglutination inhibition assay (HAI),

and both immunoblotting and ELISA assays, NAMRU-6 can quickly assess an array of both humoral and cellular responses to diarrhea challenge before and after vaccination.

NAMRU-6 has the ability to evaluate mucosal immunity via esophagogastroduodenoscopy (EGD) and colonoscopy, which allow the researcher to directly visualize infected mucosa and take aspirates and mucosal biopsies for evaluation.

Over the last three years, with the assistance of Army Maj. Matthew Goldman (Director, Pediatric Gastroenterology Fellowship, Walter Reed National Military Medical Center) and Army Maj. Luis Lugo-Roman (NAMRU-6 attending veterinarian), NAMRU-6 developed a state-of-the-art endoscopic capabilities in colonoscopy and upper endoscopy in an animal model from techniques used in humans.

NAMRU-6 partnered with pathologists, breeders, and immunologists from local universities to provide sustainability to the program and enhance Peru's ability to support laboratory investigations. Peruvian veterinary pathologists were taught to prepare and read tissue taken through mucosal biopsies eliminating the need for a complicated exportation processes. NAMRU-6 also developed new animal research guidelines with the Peruvian government to ensure ethical use of laboratory animals and enhance animal welfare in the country.

The NAMRU-6 animal facility also provides an animal Biosafety Level 3 (aBSL-3) capability. This coupled with top notch animal handlers and a modern animal enrichment and welfare program make this facility a true model for the conduct of humane and effective animal research for not only the U.S. Navy but for all the countries in the region.



## Navy Nurse Corps Celebrate 106<sup>th</sup> Birthday

By Capt. Jacqueline Rychnovsky, Naval Health Research Center Public Affairs



Capt. Rychnovsky meets with Ms. Stephanie McWhorter (right), Research Psychologist and NHRC's Chair of the Consortium on the Health and Readiness of Servicewomen (CHARS), and Dr. Cynthia Thomsen (left), as they put last minute touches on their recent grant proposal to explore gender differences in military sexual assault. (Photo taken by Ben Ventura.)

SAN DIEGO - As a little girl, science was my favorite subject. My mom always said my constant questioning made me “nosy,” but I remind her that I’m just curious.

Fast forward years later, and my curiosity helped lead me into a career in Navy Medicine as a Navy Nurse Corps officer and scientific researcher. In light of the Navy Nurse Corps’ 106 birthday celebration May 13, I’d like to share how the nearly 4,000 Navy nurses are “doing a world of good” not only in the medical field, but in the field of scientific research. We are integrated throughout Navy

Medicine worldwide whether caring for patients in need in dynamic, challenging and exciting environments or performing scientific research that serves as the building blocks for medicine around the world.

As a nurse researcher and the first Navy Nurse Corps officer to command a Navy Research and Development command, it’s not unusual for people to ask how nursing research differs from other medical or scientific research. The question never offends me but always causes me to give pause. The question is asked in the civilian

and academic community too, mainly by those wondering how nursing research differs from quality improvement studies, or how nursing research and evidence-based nursing practice inquiries or projects differ.

In general, nursing research is a rigorous scientific process that provides knowledge to influence or shape health policy, prevent disease or disability, and build a scientific foundation for clinical nursing practice. The process focuses on understanding and easing the unpleasantness of disease symptoms and finding solutions to achieve and sustain health. This differs from evidence-based practice, which is the use of best evidence to make decisions about patient care or quality improvement, which is a continuous process used to strengthen health care outcomes.

Ideally though, instead of focusing on how nursing research is different from “regular” research, I would rather talk about how they are the same. Whether research performed at the bench, on human subjects, or through systematic reviews, the end result is the same. I would argue that we are all attempting to improve care, reduce suffering, and impact quality of life. Our tools are diverse: microscopes, stethoscopes, questionnaires, lasers, medication, observation, computer software, even conversation! We

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**NAVAL MEDICAL RESEARCH CENTER WISHES THE UNITED STATES NAVY NURSE CORPS  
HAPPY 106TH BIRTHDAY!**



Graphic illustration by Mikelle D. Smith, Naval Medical Research Center Public Affairs



# NMRC Sailors and Staff Participate in Bring Your Child to Work Day and Earth Day Celebrations

Story by Mikelle D. Smith, Naval Medical Research Center Public Affairs



NMRC Executive Officer, Capt. Elizabeth Montcalm-Smith (middle) and NMRC Senior Enlisted Leader HMC Jerrold Diederich hold golden shovels as they prepare to plant two trees during the Bring Your Child to Work Day and Earth Day ceremonies, April 24. (Photo taken by Mikelle D. Smith)

SILVER SPRING, Md., -- Naval Medical Research Center (NMRC) Sailors and staff, in conjunction with Walter Reed Army Institute of Research (WRAIR), participated in 2014 Bring Your Child to Work Day and Earth Day celebrations, April 24.

The events, collectively coordinated by NMRC and WRAIR personnel, gave employees of both facilities the opportunity to bring their children to work for a fun day filled with a variety of activities spanning from military-based to research-based.

"I volunteered to participate in the morning exercise session with the children," said Lt. Rebecca Pavlicek, NMRC division director for bacteriology in the wound infections department. "With the support of the command, NMRC has bought forth a climate of fitness that positively influences everyone to get out there and be fit. I really loved seeing the smiles on the kids' faces while

they did a bit of exercising."

Sixty-five children were divided into two groups based on age and grade level. Among the research-based activities, the children had the opportunity to dissect mosquitoes, learn about and observe a variety of creatures such as scorpions and tarantulas, and they were given the option to taste edible meal worms and crickets.

One Sailor that volunteered throughout the day with both groups was Yeoman Petty Officer 2<sup>nd</sup> Class (SW) Andre Gore.

"I believe that bring your child to work day is a very important event," said Gore. "I got to work really close with some of the children and enjoyed watching them interact throughout the different stations. My favorite station was the perception goggles, which mimicked what it would be like to see things upside-down. Events like these really give parents and children the opportunity to bond while they learn more in-depth what their parents do every day."

In conjunction with Bring Your Child to Work Day, NMRC's Executive Officer Capt. Elizabeth Montcalm-Smith and Senior Enlisted Leader HMC Jerrold Diederich participated in a tree planting ceremony to commemorate Earth Day and Arbor Day 2014. This year's theme titled "Green Cities," focuses heavily on investing in efficiency and renewable energy, rebuilding cities and towns, and solving the climate crisis.

"Planting a tree was a way to celebrate our awareness and appreciation for the environment," said Montcalm-Smith. "It was also an investment that will benefit the environment for future generations."

Montcalm-Smith planted the trees alongside children from Bring Your Child to Work Day and NMRC/WRAIR's Environmental Coordinator Matt Robert, who received the trees from the Fort Dietrick Garrison in Frederick, Md.

"This was really a chance to educate the children, as well as the employees, on the importance of sustaining the environment," said Robert. "As co-located commands, things such as maintaining a healthy environment is quite important, and if it is important to the function of the commands it is important to everyone here."

To learn more about Bring Your Child to Work Day and Earth Day 2014 visit these websites at <http://www.earthday.org/greencities/> and <http://www.daughtersandsonstowork.org/>.



# NMRC/WRAIR EARTH DAY 2014 "GREEN CITIES" INITIATIVE & BRING YOUR CHILD TO WORK DAY

*Photos taken by Mikelle D. Smith, Naval Medical Research Center Public Affairs*





## Greetings from the NMRC Ombudsman!

This month is Military Appreciation month. A little history lesson for you—it was designated by Congress in 1999 as a way to ensure the nation had a special time to thank its service members for their honor, courage, and commitment to their country.

As an R&D community, it's important to remember how valuable the work is you are doing. From disease prevention to wound infection to brain injury research and so much more—all of this goes to help the operational readiness of the Navy. So to all the active duty personnel, please accept my heartfelt appreciation for your dedication to research, your community, and to the Navy. Lest we forget, May also holds Military Spouse Appreciation Day AND Mother's Day, just days apart (May 9 and May 11)—so don't forget! Spouses: you serve too.

You are the glue that holds our military families and our communities together. Be proud of the service you give to your country by supporting your active duty spouse in their job, wherever it may send them, and know you are a valuable asset to this Navy community. There are some great spouse support networks out there and I encourage you to take advantage of them whether you are a new spouse just trying to figure this whole "Navy thing" out or are a seasoned spouse with lots of great advice to pass on. Two spouse groups that are great to be a part of are the Navy Officers Spouse Club (NOSC) and the Oakleaf Club (for the medical and R&D communities).

You can find them at almost every Navy installation and the clubs are a great way to connect with other Navy spouses in a positive and uplifting environment. From my family to yours, thank you to both the service members and their spouses for answering the call of duty and being willing to serve.



Have a Great Navy Day!

Allison

## Navy Nurse Corps Celebrate 106<sup>th</sup> Birthday

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document, discover, interpret and develop concepts, thoughts and ideas to advance knowledge.

I believe that we get the most "bang for one's buck" if studies are multidisciplinary and approach a patient-focused problem through the eyes of the individual. We need to actually feel and understand what real people go through to truly understand their experience. This is why we at Naval Health Research Center are excited to be

submitting our first TriService Nursing Research Program (TSNRP) grant to evaluate gender differences in experiences of military sexual assault victims.

If funded, we propose to use a variety of research methods to describe differences and patterns in male and female experiences, figure out better ways to ask questions to help victims describe their sexual assault, and find out what helps victims cope and move on. We've built a team of nurses, doctors, and research psychologists from the Army, Navy and

Air Force to make sure we will fully understand what happens and how it makes the person feel. Team diversity equals meaningful outcomes in my book.

I am appreciative for the confidence that Navy Medicine leadership has shown in me and am grateful each day to have the opportunity to get paid to do what I enjoy most. After all, curiosity is a good trait for all researchers!